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10/597,067	07/10/2006	Roman Merz	ICB0264	5515

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EXAMINER	
GARCIA, SANTIAGO	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/597,067	MERZ ET AL.	
	Examiner	Art Unit	
	SANTIAGO GARCIA	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *36* is/are allowed.

6)☒ Claim(s) *18-22, 25, 31, 33, 34* is/are rejected.

7)☒ Claim(s) *23,24,27-30 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. On 2/12/10 applicant representative was contacted by examiner regarding a voice mail on 2/08/10, regarding clarity of final office action mailed 1/21/10. In particular to clarify the rejection of claims 24 and 26. Examiner and applicant came to an agreement that a supplemental Final Rejection is thereof necessary. An action summary form is also included for further clarity. All other examiner arguments and allowable subject matter still applies.

2. Applicant's arguments, see pages 20-22, filed 11/10/09, with respect to the rejection(s) of claim(s) 18-22 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new found reference Fette (US 2004/0264403) due to applicant's amendment.

3. Applicant's arguments, see pages 20-22, filed 11/10/09, with respect to the rejection(s) of claim(s) 23-36 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. Claims 23, 24, 27, 28, 27, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. As well as newly added claim 36 which contains the limitations of claim 27 is allowed.

Allowable Subject Matter

4. Claims 23, 24, 27, 28, 27, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Newly added claim 36 is allowable since the allowable subject matter of claim 27 is already included in the claim.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim18-22, 25, 31, 33 and 34 are rejected under 35 U.S.C. 102(a) as being anticipated by Cowie (US 2003/0095609) in view of Fette (US 2004/0264403).

As per claim 18, Cowie teaches, **a wireless data communication method between a transmitter device having a first wide band antenna for transmitting**

ultra wide band coded data signals (Cowie, fig.8 code source 812 is providing the code and antenna 824 is transmitting the coded data signal. See ¶ [0059] and [0151]),

and a receiver device having a second wide band antenna for receiving direct path and/or multiple path coded data signals (Cowie, fig.9 and 7C antenna 904 receives the signal. See ¶ [0060], [0155] and [0156] for receiver and antenna. Multi-path propagation is described in ¶ [0127]-[0128] as path 1 and 2)

the transmitted data being defined by one or more sequences of N pulses where N is an integer number higher than 1 (Cowie, fig.2A N is equal to the total number of pulses. N must be one in order to have any type of information. See ¶ [0092]),

the arrangement of N pulses of each sequence representing encoding of data relating to the transmitter device (Cowie, The pulses are encoded as shown in ¶ [0151] "The precision timing generator 808 supplies synchronizing signals 810 to the code source 812 and utilizes the code source output 814, together with an optional, internally generated subcarrier signal, and an information signal 816, to generate a modulated, coded timing signal 818. See also figure 7A coded received pulse train),

wherein the N pulses of one pulse sequence of direct path and/or multiple path coded data signals received by the receiver device are each processed in one of N corresponding reception time windows (Cowie, fig. 11 time windows 1100(a), b, c and d. Also see ¶ [0131] and [0167]-[168]),

each of the N reception time windows being positioned in time as a function of a known theoretical arrangement of the N pulses of the signals

transmitted by the transmitter device (Cowie, fig.11 and ¶ [0167]-[168] The pulses are positioned in groups of 4 in this case which would be the theoretical arrangement),

and

Cowei does not clearly teach, an operation of adding the N windows is carried out in the receiver device so that the added pulse amplitude level is higher than the noise amplitude level captured by the receiver device

an operation of adding the N windows is carried out in the receiver device so that the added pulse amplitude level is higher than the noise amplitude level captured by the receiver device.

Fette teaches, **an operation of adding N windows is carried out in the receiver device** (Fette, fig.15 combine subprocess) **in a coherent manner before demodulation** (Fetter, fig.15 combining taking place before demodulation) **so that the added pulse amplitude level is higher than the noise amplitude level captured by the receiver device** (Fette, ¶[0140] The signal is being combined to distinguish from interference and also abstract last two lines and ¶[0071] last two lines).

At the time at which the invention was made it would have been obvious to one of ordinary skill in the art to modify Cowei with the ability to sum the pulses prior to demodulation.

The motivation would have been to combat interference and improve quality of service as taught by abstract, ¶[0141] and ¶[0071] last two lines.

As per claim 19, Cowie in view of Fette further teaches, a communication method according to claim 18, wherein a clock signal frequency for clocking various operations of the receiver device is proportionally adapted to a reference clock signal frequency of the transmitter device (Cowie, ¶ [0118] and [0157] "when the transmitted impulse signal is coded and the impulse radio receiver template signal 706 is synchronized using the identical code," When using identical code the two clocks in the receiver and transmitter must be synchronized.),

~~which is used for generating ultra- wide band coded data signals~~,

by controlling the pulse amplitude level of a final window adding the N windows until said amplitude level is maximized (Fette, ¶[0147] and ¶[0113] The highest signal strength is elected)

,wherein the clock signal frequency is used to generate ultra-wide band coded signals (Cowie, ¶ [0118] and [0157] "when the transmitted impulse signal is coded and the impulse radio receiver template signal 706 is synchronized using the identical code," When using identical code the two clocks in the receiver and transmitter must be synchronized).

As per claim 20, Cowie in view of Fette further teaches, a communication method according to claim 18, wherein the transmitter device transmits coded data signals (Cowie, ¶ [0078] The transmitter is producing coded data signals), in which the data is coded by pulse position modulation (Cowie, ¶ [0076], [0090], [110] "Impulse radio can use many types of modulation, including amplitude modulation, phase modulation,

frequency modulation, time-shift modulation (also referred to as pulse-position modulation or pulse-interval modulation".)

As per claim 21, Cowie in view of Fette further teaches, a communication method according to claim 18, wherein the coded data signals include a synchronization frame allowing the receiver device to recognize the transmitter device and to be synchronized on said frame before demodulating the received data (Cowie, ¶ [0151] and [0157] In order to transmit and synchronize a synch frame must be present before going into component 932 demodulator. Furthermore component 808 provides the synch signals), said synchronization frame being composed of one or several sequences of N pulses of determined pulse repetition frequency (Cowie, ¶ [0151] Synch signals are included in the output signal therefore it is a plurality of N pulses).

As per claim 22, Cowie in view of Fette further teaches, a communication method according to claim 18, wherein the identical width of each of the N time windows (Cowie, fig.11 shows identical width N times windows) is smaller than the reverse of the mean pulse repetition frequency of a sequence of coded data signals to be transmitted (Cowie, This is time modulation which is described in ¶ [0015].),

and wherein said time window width is adapted to receive the pulses of the direct path and multiple path signals captured by the receiver device (Cowie, Multi-path propagation is described in ¶ [0127]-[0128] as path 1 and 2),

for example of width greater than 20 ns (Cowie, An ultra-wideband transmitter transmits in nano second pulses. Therefore a group of pulses in a window or instant in time could be 20ns).

As per claim 25, Cowie in view of Fette further teaches a communication method according to claim 19, wherein each reception window positioned in time in relation to the known theoretical place of each pulse of the received data signals is centered relative to a theoretical reference value or relative to the maximum added pulse amplitude of the direct path and/or multiple path signals captured by the receiver device (Cowie, ¶ [157] By the transmitter and receiver being synchronized and by component 910 adding up the pulse windows then the signals must be centered according to the reference value of the transmitter).

As per claim 31, Cowie in view of Fette further teaches, the receiver device for implementing the communication method according to claim 18, including an oscillator stage (Cowie, fig.8 804 has an oscillator) delivering at least one clock signal at a defined frequency , a signal processing unit (Cowie, fig.9 916 is delivering a clock signal. Fig.9 also shows 932, 934, 936, 938) connected to the oscillator stage, and an analogue-digital conversion stage for the coded data signals received by a wide band antenna (Cowie, fig.9 The A/D conversion is inherent to happen in component 932 Sub-carrier Demodulator. Baseband signal (analogue) 912 is going into 932 and out comes digital data therefore there must be an A/D converter inside 932 ¶ [157] and [159])),

wherein the signal processing unit includes time window addition means for coherently adding up the pulses of each of the N time windows (Fig.9 pulse sum 934 and ¶ [158]. Also see figures 11 and ¶ [0167]-[0168], the numbers 11009a-d also represent time windows, which are positioned in time as function of theoretical arrangement of the transmission coding, each window containing four pulses 1101a-1104a which are integrated, thereby amounting to carrying out an addition of the N windows).

As per claim 33, Cowie in view of Fette further teaches a receiver device according to claim 31, wherein the time window addition means receive digital signals from the analogue-digital conversion stage for adding up the digital windows (Cowie, fig.9 component 934 must have the D/A converter and must be before addition as explained in ¶[0157]-[0159]).

As per claim 34, Cowie in view of Fette further teaches a receiver device according to claim 31, wherein the time window addition means receive analogue data signals from the second wide band antenna in order to add up the analogue windows (Cowie, fig.9 component 934 must have the D/A converter and must be before addition as explained in ¶[0157]-[0159]. Analogue is considered to be a commonplace place alternative to the addition of digital windows).

2. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cowie (US 2003/0095609) in view of Cattaneo (US 2003/0058963).

As per claim 24, Cowie further teaches a communication method according to claim 23.

Cowie does not teach, wherein the time window signals are successively added and stored in at least one register of the second signal processing unit.

Cattaneo teaches, wherein the time window signals are successively added (Cattaneo, fig.13 Showing the time window signals being successively added. Also see ¶[0068])

and stored in at least one register of the second signal processing unit (Cattaneo, It is inherent that the sliding correlation unit of fig.13 must have a register/buffer.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Cowie's system to include the feature of adding the time windows successively, as taught by Cattaneo.

The motivation would be to be able to be able to improve performance of the wireless communication system (see col.3, lines 49-50).

3. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cowie (US 2003/0095609) in view of Fette (US 2004/0264403) and further in view of Batra (US 7,397,870).

As per claim 26, Cowie in view of Fette further teaches a communication method according to claim 20, prior to addition of the resulting pulses of each time window (Cowie, fig.9 the correlator is 910 which is before the pulse sum).

Cowie in view of Fette does not teach, wherein the reference signals of identical polarity to the polarity of the coded signals received by the receiver device are correlated.

Batra teaches, wherein the reference signals of identical polarity to the polarity of the coded signals received by the receiver device are correlated (Batra, col 11 lines 24-29 In order to accurately detect the pulses with reversed polarity, two signed match filters 905 and 925 can be used. The first signed match filter 905 is used to correlate and integrate pulses of one polarity while the second signed match filter 925 is used to correlate and integrate pulses of a reversed polarity. This shows that is known that correlating signals with the same polarity is known).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Cowie in view of Fette's system to include the feature correlating pulses of the same polarity of Batra .

The motivation would be to be able to perform synchronization before performing the integration or addition of windows.

4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cowie (US 2003/0095609) in view of Fette (US 2004/0264403) and in view of Cattaneo (2003/0058963) and further in view of Takamura (US 2003/0035465).

As per claim 32, Cowie in view of Fette teaches a receiver device according to claim 31,

which is used for generating ultra-wide band coded data signals (Cowie, fig.8 code source and pulse generator generate a coded data signal),

Cowie does not teach, wherein the clock signal frequency of the oscillator stage is proportionally adapted by the processing unit to a reference clock signal frequency of an oscillator stage of the transmitter device

by controlling the pulse amplitude level of a final addition window of the N windows from the addition means until said amplitude level is maximized

Cattaneo teaches, wherein the clock signal frequency of the oscillator stage is proportionally adapted by the processing unit to a reference clock signal frequency of an oscillator stage of the transmitter device (Cattaneo, fig. 7 and ¶[056] Shows an oscillator hooked up to reference clock CLKe).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Cowie's system to include a reference clock hooked up to an oscillator as taught by Cattaneo.

The motivation would be to be to improve sampling means as taught by Cattaneo.

Cowie in view of Cattaneo does not teach, by controlling the pulse amplitude level of a final addition window of the N windows from the addition means until said amplitude level is maximized

Takamura teaches, by controlling the pulse amplitude level of a final addition window of the N windows from the addition means until said amplitude level is maximized (Takamura, Fig.3 component 807 and ¶[037] By having control of the amplitude the level may be maximized according a predefined alternation factor).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Cowie in view of Cattaneo to include an amplitude alternation means as taught by Takamura.

The motivation would be to be to have the signals not interfere with interference or noise.

Conclusion

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANTIAGO GARCIA whose telephone number is (571)270-5182. The examiner can normally be reached on MONDAY- FRIDAY 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh, Fan can be reached on (571) 272-7305. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO

Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SG/

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611